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THREE NEW SPECIES AND NEW RECORDS OF SOUTHERN  
MILLIPEDS

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Unless stated otherwise, the specimens mentioned in this paper were collected by the author with the assistance of Dr. David Causey and are now in the author's collection; holotypes will be deposited in the American Museum of Natural History.

Order NEMATOPHORA  
Suborder LYSIOPETALIDA

Three genera of lysiopetaloid millipeds are represented in the fauna of the Gulf States. The best known is *Abacion* Rafinesque (1820) of which several species occur in the states bound by a line from central Texas to North Dakota on the west and the Atlantic coast on the east. Three species of *Delophon* Chamberlin (1943) are known from North Carolina, Georgia, and Mississippi, but *Texophon* Chamberlin (1946) is known only from the generotype from Laguna Madre, Cameron Co., Texas. In species of *Delophon* and *Texophon* the body length is 25 mm or less, making them subject to easy confusion with larval specimens of the larger and ubiquitous species of *Abacion*.

The following key to these genera and to the three species of *Delophon* is based mainly on the gonopods of adult males.

1. Terminal branches of telopodite very short. .... *Texophon*  
Terminal branches of telopodite long, conspicuous. .... 2
2. Terminal branches of telopodite variously curved, directed laterad. Coxite of gonopodal segment never sheath-like. .... *Abacion*  
Terminal branches of telopodite almost straight, retrorse. Coxite on gonopodal segment forms a long, partial sheath around the shaft of the telopodite. .... (*Delophon*) 3
3. Terminal region of telopodite divided into two sharply pointed branches. About 34 ocelli in 7 or 8 transverse series. .... *Delophon serrulatum*, sp. nov.  
Terminal region of telopodite divided into three sharply pointed branches. Ocelli in 8 or 9 transverse series. .... 4
4. About 58 ocelli in each eye. .... *Delophon georgianum* Chamberlin (1943).  
About 43 or 45 ocelli in each eye. .... *Delophon carolinum* Hoffman (1950).

Family DORYPETALIDAE

Genus *Delophon*

*Delophon* Chamberlin, 1943, Bull. Univ. Utah, Biol. Ser., 8(2):13.

## DELOPHON SERRULATUM, sp. nov.

*Diagnosis.*—Distinguished from the other two species of the genus by the reduced number of ocelli and by the presence of two rather than three acute terminal branches on the telopodite of the male gonopods.

*Type locality.*—Mississippi: Baldwin County, 9 miles west of Loxley at the junction of U. S. Highway No. 90 and Mississippi State Route No. 89; Jan. 5, 1954; 1 male.

*Male holotype.*—Body slender, cylindrical, about 26.5 mm long, 1.2 mm wide; 48 segments, the last three legless. Medium brown above; legs and venter light brown. Eyes triangular, about 34 ocelli in seven or eight transverse series. Segments 2 and 3 of antennae subequal and slightly longer than segment 4, which is longer than 5. Forehead moderately rounded. Segment 6 conspicuously larger than segments 1 through 5 and slightly larger than 7 and the following segments. Collum with about 20 longitudinal crests, all ending on the caudal margin and of uniform height but not of uniform length. On the anterior segments both the primary and the secondary crests extend the full length of the metazonite and are subequal in height; on the middle segments the secondary crests diminish in both height and length, and on the posterior segments they fade out. The transition from ten to fourteen dorsal crests between the repugnatorial pores takes place on segment 12. Pore crests fusiform and scarcely more prominent than the adjacent primary crests. Last tergite short, without crests, but with six tuberculate setae near the hind margin and two long, projecting papillate hairs. Setae at end of primary crests not more than one-fourth the length of the crests. Legs 2, 3, and 4 each with a velutinous pad on the ventral surface of the distal half of the last article.

*In situ* the two gonopods are parallel and contiguous as far distad as the terminal branches, which are bent sharply in a retrorse direction. The long, ventro-caudally arched shaft of the telopodite is partially enclosed by the coxal sheath, or coxite, which extends as far ventrad as the terminal branches. The two terminal branches (figs. 1, 2, *bl*, *bm*) are almost straight and sharply pointed; the lateral branch is broader and slightly longer than the medial branch. The seminal canal branch (fig. 1, *bc*) is short, blunt, and arises from the medial branch. The coxal sheath is minutely rugose, and its apical region, which is less expanded along the mesial margin than in *georgianum*, is thin and irregularly serrulate (fig. 3, *cs*).

*Ecology.*—The collection site is a hilly, thin, mixed woodland. Myriapods were scarce; other than this specimen, a few lithoboid centipeds and larvae of *Abacion* sp. and *Cleidogona* sp. were found.

## Suborder CHORDEUMIDA

## Family CLEIDOGONIDAE

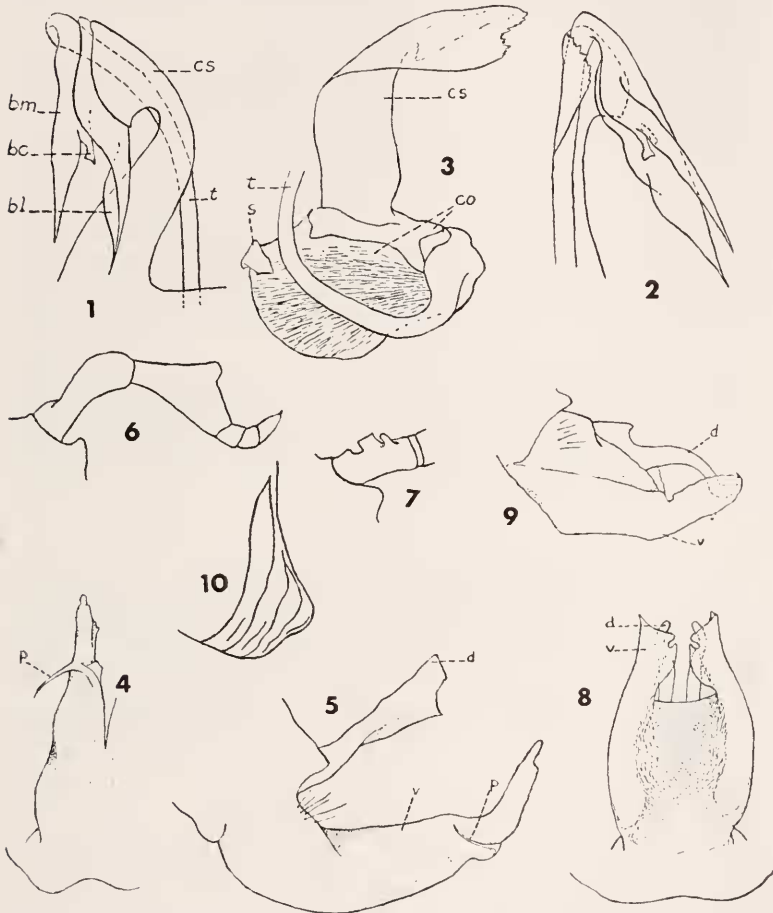
Genus *Cleidogona*

*Cleidogona* Cook and Collins 1896, Ann. New York Acad. Sci., 9(1-3): 41-42.

*Cleidogona aspera* Causey

*Cleidogona aspera* Causey, 1951, Jour. Washington Acad. Sci., 41(2):78, figs. 1-4.

New record.—Louisiana: Lincoln Par., Ruston; Oct., 1951; W. J. Harman; 3 males, 5 females.



Figures 1-10. *Delophon serrulatum*, sp. nov.: 1. distal region of telopodite of left gonopod, lateral view; 2. same, caudal view; 3. basal region of left gonopod, mesial view. *Cleidogona sublettei*, sp. nov.: 4. ventral branch of left gonopod, ventral view; 5. left gonopod, lateral view. *Cleidogona arkansana*, sp. nov.: 6. ninth leg; 7. base of eleventh leg; 8. gonopods, ventral view; 9. left gonopod, lateral view. *Orthoporos ornatus* (Girard): 10. ventral margin of collum, right side, female. Abbreviations: *bc* = seminal canal branch, *bl* = lateral branch, *bm* = mesial branch, *co* = coxa, *cs* = coxal sheath, *d* = dorsal branch, *p* = lateral process, *s* = cut middle surface of sternum, *t* = shaft of telopodite, *v* = ventral branch.

## CLEIDOGONA SUBLETTEI, sp. nov.

*Diagnosis.*—The male gonopods of this species closely resemble those of *C. mississippiana* Chamberlin (1942). The two species are best separated by the absence in *C. sublettei* of a subterminal spine from the dorsal surface of the ventral branch.

*Type locality.*—Louisiana: Natchitoches Parish, Grand Ecore; Nov. 13, 1953; James E. Sublette, 3 males.

*Male holotype.*—Length about 20 mm. Brown above and laterad, with the usual areolated buff maculae; venter cream; tarsi brown, remainder of legs cream. Antennae and vertex of head brown; ocelli black, forming a triangular patch, in series of 1, 7, 6, 5, 4, 3, 2.

The second articles of the ninth leg are as in *mississippiana*, but the coxae differ in that the excavation is broader, as in *C. laminata* Cook and Collins (1895) and *C. aspera* Causey (1951), and the distal surface is granular. The coxae of the tenth and eleventh legs have each the usual short, cylindrical process through which the coxal gland opens; the eleventh coxae have each a small, flattened, capitate process on the caudal surface. The sternal process at the base of the twelfth legs is as in *C. unita* Causey (1951).

The ventral branches of the gonopods are attenuated, subparallel, relatively simple, and slightly arched, so the apices rest on the base of the eleventh legs; the laterally directed subterminal process (figs. 4, 5, *v*, *p*) is a spine rather than a lamella, as it is in *mississippiana*. The dorsal branch is straight, with the apical region broad and flattened (fig. 5, *v*).

## CLEIDOGONA ARKANSANA, sp. nov.

*Diagnosis.*—The male gonopods of this species are nearest those of *C. fustis* Cook and Collins (1895). The two species are easily separated by the apex of the ventral branch, which in *fustis* is deeply bifid and abruptly twisted, and in *arkansana* is shallowly bifid and not twisted.

*Type locality.*—Arkansas: Dallas Co., four miles east of Princeton at a picnic site on Arkansas State Route No. 8; Jan. 7, 1954; one male, one female.

*Male holotype.*—Length about 15 mm. Light brown above and laterad, the usual areolated maculae scarcely visible. Antennae and vertex of head brown; ocelli black, forming a triangular patch, in series of 1, 7, 6, 5, 4 (3), 3, 2.

The seventh legs have each a mammillate process as large as the processes of the tenth legs on the caudal surface of the coxae. The ninth legs (fig. 6) have the first articles relatively simple, but the second articles are produced ventrad in an unusual way. The coxae of the tenth and eleventh legs have each the usual short, cylindrical process through which the coxal gland opens; the eleventh coxae (fig. 7) have each an additional, smaller, cylindrical process on the caudal surface. The sternal process at the bases of the twelfth legs is as in *C. unita* Causey (1951).

The ventral branches of the gonopods (fig. 8, *v*) are slightly

bowed laterad, bringing the apices almost together; most of the space between these branches is filled by a thin lamella. The apex of the dorsal branch is truncated, shallowly bifid, and slightly curved laterad about the apex of the ventral branches. The arched dorsal branch (fig. 9) is abruptly bent at the apex.

*Female allotype*.—Somatic characters agree with those of the male.

Order POLYDESMIDA

Family EURYMERODESMIDAE

Genus *Eurymerodesmus*

*Eurymerodesmus* Brolemann 1900, Proc. Biol. Soc. Wash., 33:97-98.

*Eurymerodesmus varius* (McNeill)

*Polydesmus varius* McNeill, 1887, Proc. U. S. Natl. Mus., 10:323-324, pl. 11, figs. 1, 2 (female, Escambia Co., Fla.).

*Eurymerodesmus minimus* Loomis, 1943, Jour. Washington Acad. Sci., 33(10):320, fig. 2 (male, Marianna, Jackson Co., Fla.).

*New records*.—*Florida*: Escambia Co., Pensacola and Cantonment; Jan. 5, 1954; under live oaks, adults and larvae of both sexes. *Alabama*: Mobile Co., Spring Hill; March, 1954; one female; C. E. Valentine.

The specimens of *E. varius* in my collection correspond so closely to Loomis' excellent description of his *E. minimus* that there can be little doubt that the latter must be regarded as a synonym of *E. varius*.

Family XYSTODESMIDAE

Genus *Apheloria*

*Apheloria* Chamberlin 1921, Canad. Ent., 53:232.

*Apheloria reducta* Chamberlin

*Apheloria reducta* Chamberlin, 1939, Bull. Univ. Utah, Biol. Ser., 5(3):11, pl. 4, fig. 35 (male, Imboden, Lawrence Co., Ark.).

*New record*.—*Oklahoma*: McCurtain Co.; July 20, 1954; one male, width 10.8 mm, length about 41 mm; W. J. Harman.

This species has heretofore been known only from northern and western Arkansas and southern Missouri.

Order SPIROSTREPTIDA

Family SPIROSTREPTIDAE

Genus *Orthoporus*

*Orthoporus* Attems 1914, Zoologica, 25(5/6):132.

*Orthoporus ornatus* (Girard)

*Julus ornatus* Girard, 1853. In Marcy, Report on Red River Exped., p. 274 ("collected on the 27th of June").

*Spirobolus ornatus*, Wood, 1865, Trans. Amer. Philos. Soc., 13:208-209; Bollman, 1887, Ann. New York Acad. Sci., 4:43.

*New record*.—*Texas*: Randall Co., Palo Duro Canyon State Park; July, 1953; 1 female; H. H. Iltis.

Girard's references to the longer antennae, the shape of the eyes, and the upper lip indicate that his *Julus ornatus* is an orthoporid, not

a spirobolid, but there is little of specific value in his description. His collection date fixes the type locality as either within or very near the present Palo Duro Canyon State Park, Randall County, Texas. A resident of that area reported to me in 1953 that "these big thousand-leggers have been migrating across our road in great numbers all summer."

*Female topotype*.—Width 11 mm, length about 185 mm, 70 segments. Most segments with three annuli, of which the most anterior is tan and visible only on the dorsal surface of many segments, the middle is widest and almost black, and the caudal is narrow and dark red. Legs almost black. The blue color observed by Girard and not observed in this specimen is usually associated with a recently molted condition. Eyes composed of seven transverse series of from fourteen to three ocelli. Both corners of collum (fig. 10) rounded, the anterior slightly produced, and the ventral margin slightly concave between the corners. Collum with four impressed lines branching from the marginal sulcus to the caudal margin; the upper limit of the marginal sulcus is the height of the caudal row of ocelli. Body surface finely and evenly punctuate. Segmental sutures light, only slightly indented toward the pores, which are located about one-fourth the distance from the segmental sutures to the caudal margin of the segments. Caudal one-third of last tergite abruptly depressed and more coarsely punctuate than the remainder of the surface; apex of tergite slightly obtuse and well exceeded by the thin margins of the anal valves.

The large size and the shape of the lateral margins of the collum should serve to distinguish females of *O. ornatus* from other orthopods in adjacent areas of Texas and Oklahoma.

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